

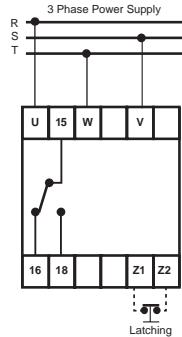


3 Phase Monitoring Relay - Phase Sequence, Failure, or Asymmetry Detection Adjustable time delays

P430P



WIRING EXAMPLE



Application Examples

- Detection of phase failure and phase reversal on voltage transformers of HT switchgear.
- Protection of 3 phase motors against single phasing.
- Overhead line supervision in rural areas.
- Protection against reverse phase sequence on forward and reverse operating machines.
- Protection against phase reversal on 3-phase compressor motors with time delay on relay energisation.
- Detection of phase angle errors & unbalanced supply voltage

ORDERING CODE

TYPE	SUPPLY VOLTAGE	AC/DC	RELAY CONTACTS	Fn
P430PD	400	A	S	2

Note: Fn1 = adjustable time delay on trip (1-10 sec)
Fn2 = adjustable time delay on recovery (1-100 sec)

Technical Specification

Power Supply:

Supply voltage (phase-to-phase):
400 (ie. 380, 400 or 415) VAC $\pm 20\%$

Response:

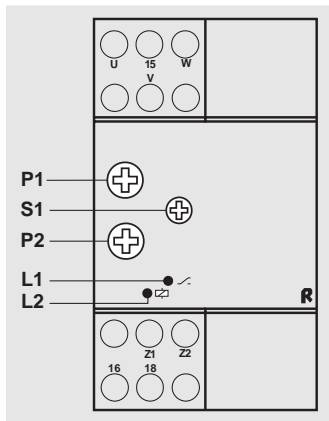
Time delay on trip: Fn1: 1-10 seconds (approx.)
Fn2: 1 second
Time delay on recovery: Fn1: 1 second
Fn2: 1-100 seconds (approx)

Voltage Sensing:

Repetitive accuracy: 1%
Hysteresis : 2% fixed (relative to its supply voltage)

Note: Insensitive to regenerated EMF voltage.
Insensitive to balanced supply voltage variations.
High stability under harmonic distortion.

Description of Controls



P1: **Adjustable Time Delay on Trip (ordering option Fn1) or Recovery (ordering option Fn2)** is adjusted on P1, as per the specification above.

P2: **The Sensitivity** to 3-phase voltage imbalance is adjusted on P2. The scale is calibrated in percentage NPS voltage. For general applications, a setting of between 5% and 7% is recommended.

L1: The yellow "Relay ON" LED will illuminate when the relay is energised, and switches off if the unit registers a fault condition.

L2: The green "Power ON" LED illuminates when power is supplied to the unit.

Fault Detection: When power is applied, the relay energises after approximately one second, provided all three phases are balanced and in the correct sequence. The relay will de-energise when any one of the following faults occur:

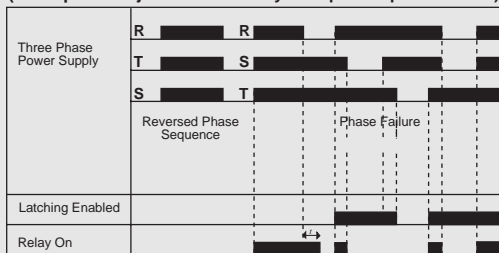
- reversal of phase sequence.
- failure of one or more phases ("single phasing")
- excessive imbalance between phases.
- excessive phase angle error.

The relay will energise again when proper power supply conditions are established. Imbalance sensitivity, ie. percentage NPS voltage tolerance is adjustable between 5% and 15%.

Note: The unit will not react to a balanced under-voltage or over-voltage condition on all three phases. For over-/under- voltage protection refer to SP 231 or AP230.

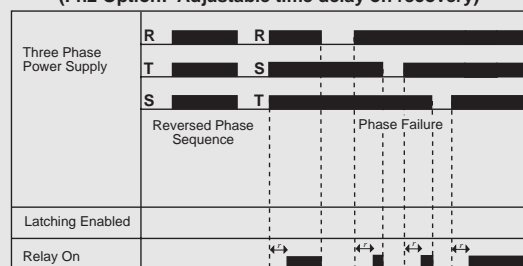
Operational Diagrams

Example of P430P 3-phase monitoring with latching
(Fn1 Option: Adjustable time delay on trip - except S or T loss)



t = adjustable time delay on trip (1-10 sec) - except for loss of S or T phase (1 sec)
l = latching disabled for 10 seconds at power-up

Example of P430P 3-phase monitoring without latching
(Fn2 Option: Adjustable time delay on recovery)



r = adjustable time delay on recovery (1-100 seconds)